OIB
Antarctic Flight 12, Thwaites, Smith, Kohler #1

Aircraft	DC-8
Flight Number	DC8-100120
Flt Req #	108002
Flight Hours	10.9
Date	11/2/09
Purpose of Flight	ICE Bridge-Thwaites, Smith & Koehler Glaciers #1
Aircraft Status	Airworthy
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	The flight matched a composite track of two previous P-3 flights from several years ago for change detection of glacial features. The low altitude flight used ATM guidance cues but was entirely hand flown without aircraft controls coupling. MCoRDS, Ku Band radar, Snow radar & gravimeter all collected data DMS reported acquiring 10,000 images, ATM 200 million laser measurements, KU radars 550 GB of data. This was very demanding flying as the P-3 aircraft appeared to have difficulty at times and the DC-8 was required to match the tracks.
Planned events	A choice between two Peninsula missions.

Flight Summary

Thwaites, Smith, Kohler 1, FLT 12

November 2, 2009

Bill Krabill (Mission Principal Investigator):

official take-off 131702z

Litton LN100 INS UPS suffered a reset in power switchover,
forcing a delay in pushback by about 15 min.

Begin descent 1626z.

As we began our descent for low level data collection we observed clouds

immediately below us, but by the time we reached our first waypoint the clouds thinned out to allow for
good laser returns. Conditions remained very good throughout the entire flight.

MCords real time display exhibited clear definition of the bottom topography as we surveyed across the Pine Island and Thwaites glaciers. Depths ranged between 1 and 2 kilometers in this region.

We observed that the last line, which presumably skimmed along the outer edge of the Thwaites glacier calving point during the 2002 survey, was now over open water.

2047z climb out for return to base.

We were accompanied today by Dr. Andres Rivera, glaciologist with CECS.

Individual instrument reports:

ATM: A successful mission was flown today. The DC8 once again flew on the Soxmap system well, reoccupying lines flown during two previous Chilean Navy P3 flights. All systems operated well again, with approximately 200 million laser shots taken.

MCoRDS: The University of Kansas MCoRDS system collected data for 4.5 hours during the survey. About 1.2 TB of data were collected. Based on observations of the real time display the bed echo was clearly detectable for approximately 90% of the mission. The maximum thickness observed was ~2 km.

Snow and Ku-Band radar: Both the Snow and Ku-band Radars collected data for the low-altitude flight today. The Snow Radar recorded 275 GB of raw data and the Ku-band Radar collected 325 GB of raw data. Both radars displayed an a-scope response typical for low altitude missions over land ice. Both systems have no problems moving forward.

LVIS: was not present

DMS: worked well; routine; 10,000 images recorded.

Gravity: worked normally.

POS/AV: operated normally.

DC8 on board data: worked well; enhanced the pilots SOXMAP display.

Jim Yungel (ATM Team):

Another successful mission was flown to the Thwaites glacier region.
This mission again re-occupied previously flown ATM and KU radar lines flown on the Chilean Navy P3 in 2002 and 2004. All science instrumentation onboard the DC8 performed as expected in sunny clear weather conditions with light, low level chop. The ATM systems acquired 200 million total laser elevation measurements over the target area today, for comparison to the previous P3 surveys and IceSat measurements.
The photos below are from the Thwaites and Pine Island glaciers and Mount Murphey region.
We'll be standing by to fly again tomorrow if the weather permits.